BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking on the Commission's own motion to improve distribution level interconnection rules and regulations for certain classes of electric generators and electric storage resources.	))))))	Rulemaking 11-09-011 (Filed September 22, 2011)

JOINT COMMENTS OF THE SOUTHERN CALIFORNIA EDISON COMPANY (U338-E), SAN DIEGO GAS & ELECTRIC COMPANY (U902-E) AND PACIFIC GAS AND ELECTRIC COMPANY (U39-E) TO ADMINISTRATIVE LAW JUDGE'S RULING DATED JULY 29, 2014 AND ENERGY STORAGE INTERCONNECTION STAFF REPORT

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I. INTRODUCTION

Pursuant to the assigned Administrative Law Judge's ruling in this proceeding dated July 29, 2014, Pacific Gas and Electric Company ("PG&E"), Southern California Edison Company ("SCE"), and San Diego Gas & Electric Company ("SDG&E") (together, "IOUs") respectfully submit the following comments relating to the proposals contained in the Staff Report on interconnection and storage issues.

II. COMMENTS

In general, the Staff Report provides several options and services which the IOUs agree with. However, the IOUs act as stewards for California's ratepayers and respond with this duty in mind. The Commission and parties must recognize the need for balance between the services proposed in the Staff Report and the value of such services to the ratepayers. All of the proposals referenced below that propose the development of new services or procedures would require the IOUs to expend time and resources. Since the benefit of these new processes would

inure to California's ratepayers, the development and implementation costs would necessarily be passed down to them. The IOUs believe that some of the proposals do not offer sufficient benefit to justify the costs and, for that reason, the IOUs respectfully disagree with them.

1. Safety Planning

Please provide comments on this proposed safety scheme meant to ensure safety for the people and environment of the State of California in a changing electrical environment. What elements should be part of the safety plan?

The IOUs are committed to the safe and reliable operation of their systems. Safety is paramount with all interconnections, including storage devices. It is unclear how the following proposal would accomplish that goal, and the IOUs believe it is an inappropriate requirement. The Staff Report proposes that "[a]pplicants should submit to utilities a safety plan containing contingency plans and mitigation techniques as necessary. Utilities should coordinate with SED biannually to review such plans and to ensure that regulators are assured of utility preparedness.[1]"

While the IOUs have safety requirements and best practices related to interconnection, the storage applicants ("Developers") have their own responsibilities on their side of the meter. The IOU is not the most appropriate body to receive safety plans or to maintain, coordinate and enforce these requirements.

The IOUs believe that this responsibility is a function of the local inspecting facility which is the Authority Having Jurisdiction ("AHJ") for all electrical facilities on the customer side which are connected beyond the Point of Change of Ownership ("POCO"). The AHJ is also better situated than the IOUs to bring together all key parties to resolve safety concerns.

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1 Issues, Priorities and Recommendations for Energy Storage Interconnection, Staff Proposal, July 18, 2014. Page 6

Accordingly, The Developers safety plans should be shared with the AHJ. In order to ensure the safety of the utility employees and equipment, the utility will continue to reinforce the requirements for customer equipment as outlined in the utility interconnection handbooks.

It should be noted that this issue is also addressed in D.14-05-033 which states that "[s]everal parties commented that while there are standards and rules addressing safety, there is a lack of coordination at the state level. We agree. In order to facilitate a more cohesive set of standards and practices, we direct Commission staff to work with the state-wide entities such as the Governor's Office of Planning and Research and the Office of the State Fire Marshall to identify existing best practices and, if necessary, develop a set of best practices to improve permitting and inspection by local authorities. The resulting best practices shall be posted on the Commission's website."

The IOUs look forward to participating in that state-wide effort. To the extent that local agencies of jurisdiction require a safety plan, it could make sense for the IOU to be aware, and even have access to copies of the safety plan for informational purposes. However, it would be inappropriate for the IOU to step into or in between the jurisdictional relationship of the local agency of jurisdiction. Doing so could at best introduce confusion, and at worst put the IOU in the place of taking on responsibility and/or liability for the safety of customer owned and operated facilities that the IOU does not own nor have permission legally to access.

Elements which should be addressed by a safety plan include fire concerns, electrical hazards, chemical hazards and emergency response.

2. Pre-Interconnection Consultation Process

In comments, please delineate the expected services to be provided by this consultation process, the timeframe and format for the delivery of results, and any other recommendations on this collaborative process.

The Staff Report suggests that the IOUs should develop and promote an Advanced Interconnection Consultation Process.[2] As mentioned earlier, the IOUs act as stewards for California's ratepayers. Therefore, there needs to be a balance between the services provided with the value of such services to ratepayers.

The IOUs are committed to providing excellent customer services. In the vast majority of circumstances, the IOUs believe they provide customer service of a high quality.

The creation of an Advanced Interconnection Consultation Process is not necessary and should not be required. The IOUs currently work with developers through-out the process and have a healthy back and forth exchange as project information is delivered to the IOU. IOUs provide guidance to the developer via a number of interactions. For example, the pre-application report provided for by Rule 21 provides a good source of technical data for the Developer.

3. Define Storage Interconnection Terms and Concepts in the Definitions Section of Rule 21

In comments, please list the terms or concepts that require definition to be added to the Rule 21 Definitions section. Please also attempt to provide a working definition of the term or concept.

Adopting common definitions is a worthwhile goal. When creating definitions for Rule 21, parties should ensure that they are as consistent as possible with common usage and pre-existing definitions in other venues/proceedings.

The following terms may be ripe for definitions to be established:

a. Stored Energy: The amount of electromechanical, chemical, mechanical or thermal energy and other forms which can be transferred from its existing form of energy to alternative form(s) of energy.

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[2] Issues, Priorities and Recommendations for Energy Storage Interconnection, Staff Proposal, July 18, 2014. Page 7

b. Maximum Charge Rate: The maximum amount of energy which can be transferred to a storage device at any given time.

c. Storage Kwh Capacity: The capacity of the storage device to hold ("store") electrical energy.

d. Discharge: The act of converting "stored" energy into an alternative form of energy. Such as converting energy stored in a battery to electrical current in an electrical circuit.

e. Charging Periods: Specified time periods in a day, month or year when energy will be transferred to a device capable of storing energy. Such periods when electrical energy will be used to charge a battery.

f. Charging Controls: The specified manual, automatic or other means which will be used to control the transfer of energy to a device capable of storing energy. Such as the controls used to transfer electrical energy from the grid to a battery.

g. Charging Demand: The function of a storage device when electrical energy is converted to stored energy. Under this function, the storage device will be drawing energy from the grid or another source, such as on-site generation.

h. Discharging Demand: The function of a storage device when stored energy is converted to electrical energy. Under this function, the storage device will be discharging energy into either on-site load demand or back onto the grid.

i. Charging Efficiency Factor: The recorded or expected capability to transfer a given amount of energy (such as electrical energy) into the same amount of stored energy (such as energy in battery).

j. Peak Shaving: The act of flattening a facility's electrical demand while using the same amount of electrical energy in Kwhs.

4. Identify the Fast Track Threshold for Storage Projects and the Fast Track Study Screens for Storage Projects

Please comment on the threshold parameters for a storage facility to access the Fast Track Process. Please also discuss the aspects of the storage facility that should be studied in a standardized way for Fast Track Study Screen development

The IOUs believe that the interconnection process for storage systems should be consistent with existing procedures therefore section E.2.b.i may not need to be revised. However, the IOUs agree with the Staff Report that storage fast track screens should be added to the Rule 21 technical framework and to the applicable sections of Section G.

Engineers for the IOUs have proactively developed an additional screen and relevant information to add to the Rule 21 technical framework. The IOUs anticipate submitting these changes to the Commission in the Fourth Quarter of 2014. The utilities expect that further refinements may be necessary.

Please comment on the special case of "non-exporting" storage: What parameters and requirements should be considered to determine whether or not a storage device is "non-exporting"? What type of proof should be available to prove "non-exporting"? Should non-exporting storage devices be allowed to bypass the interconnection process entirely? Should some other process be required? If so, what?

Non-exporting storage devices should not be allowed to bypass the Rule 21 interconnection process. All generation connected behind the meter which does not export to the grid modifies the customer load. This property is not exclusive to storage systems. It is also a characteristic of solar, induction and synchronous generation when connected behind the meter. Thus, all of these generation types should be required to interconnect using the process under Rule 21.

When a storage system is operated as an "electrical source", the storage system functions equivalent to any other type of inverter based generation such as PV, fuel cell, wind, induction or others. When operated as an electrical source, the storage system is capable of affecting the distribution system safety and reliability, and thus inverters for storage systems must also undergo the same UL certification requirements as inverters for other technologies. Exempting storage systems from the Rule 21 interconnection process would create safety and reliability issues on the distribution system.

The IOUs have already begun to examine modifications to Rule 21 to accommodate all types of storage. We will continue to review the tariff and may seek approval for changes in order to create the best process possible.

Please comment on the practicalities of reducing interconnection study times by standardizing study data and system characteristic into algorithms made accessible through a visual platform. Please describe the potential benefits and expected costs of instituting such technology advancement in utility interconnection departments.

The IOUs respectfully request that Staff clarify this concept. The statement "standardizing study data and system characteristic into algorithms made accessible through a visual platform" is unclear and requires further discussion.

That said, software enhancements could allow for more effective processing of interconnection applications including those for storage. There would be a cost to developing and implementing these enhancements.

5. Update the Interconnection Agreement to Account for Storage Attributes

Please comment on how might the utility and applicant best consult to determine the optimal storage facility settings and prevent an extended Interconnection Agreement negotiation phase when a variety of distribution grid upgrades and storage facility working parameters are discussed as possibilities.

The IOUs agree that developers and IOUs can and should discuss parameters around storage device settings. Interconnection agreements should be refined to address technical changes only to accommodate storage.

In order for this to work the proposed storage device will need to go through a full detailed study. This option should be requested by the applicant via an application for interconnection.

How best can the utility provide information to the applicant, and what type of information would be required at the conclusion of the study phase that would be most helpful to all parties in order to move smoothly into the Interconnection Agreement signing phase?

Utilities are currently providing all applicable interconnection information to the applicant in a timely fashion. Rule 21 recently underwent a major overhaul to address many such issues including the interconnection agreement execution phase and timelines. Timelines

were formalized that utilities are obligated to honor under ordinary circumstances. Additionally, if a developer does not believe the utility is fulfilling its interconnection obligations (e.g., meeting timelines), the developer now has a formal dispute resolution process that they may pursue.

The utility performs the required studies within the applicable timelines, prepares a final report for each study process and submits that report to the applicant. That report tells the applicant exactly what is required and the estimated cost to interconnect their proposed project to the distribution system. Additionally, after receipt of the final report, the developer is afforded another opportunity to further discuss the report results with the utility by requesting a Results Meeting.

Should study results reflect the possible high, mid and low level distribution upgrade costs and corresponding storage use restrictions or some other method?

Imposing such a requirement would be burdensome to the utility without established benefits to the ratepayers to justify the cost. To anticipate and formulate all levels of dispatch is unreasonable. The utility can provide the upgrade costs for full deliverability, and a minimum level of cost and its accompanying charge and discharge restrictions. Further refinements can be contemplated further in the study process.

For projects interconnecting under Rule 21, it is expected that the study process will produce an operational limitation requirement which will include charging periods, charging rates and control specifications. The study would also produce the scope, cost and time required to implement any upgrades needed to interconnect the storage projects based on the functions requested by the applicant and based on the agreed operation schemes.

What type of penalties might accrue for operations outside of agreed-to use restrictions?

Interconnection is a potentially hazardous business, requiring detailed studies and strict adherence to operational requirements. Since the failure to operate within agreed-to restrictions risks the safe and reliable operation of the distribution grid, the Commission will need to implement safeguards to ensure that an interconnected storage device operates within the preset and negotiated restrictions. This aspect is critical to safety.

Commensurate with that risk, and consistent with other interconnections, the IOUs should have the right to inspect interconnections and immediately halt interconnection service upon discovering that the storage device is operating outside of previously agreed-to restrictions. The IOUs should continue to be able to recover damages for failure to comply with the terms of the agreement.

6. Update the Interconnection Application to Accommodate Storage Attributes

Please comment on the potential for utilizing the internet as the only submission channel for interconnection information, detail what information should be delivered to a utility on an interconnection request for a storage facility, provide any other recommendations for utilizing the interconnection application to maximizing the efficiency of the interconnection process. Should there be a single standard application?

The IOUs are amenable to having all applications submitted via electronic means. In order to provide for a single channel submission, the Commission would need to allow the IOUs ability to collect costs related to implementation of the new process.

7. Utility Consideration of Alternative Interconnection Metering and Protection Schemes

Please discuss how an Applicant might trigger a "New Technology/ New Schema" Testing Process, what that process should be, the information that should be submitted to it, and how we might involve standard writing bodies to respond to changing needs in the energy industry. How can utility test labs be leveraged? Discuss how Applicants should present proof-of-concept evidence, including what type of evidence is necessary, when making a request that any party consider altering best practices.

The Staff Report states that the "[u]tilities should determine a process for testing the capabilities of alternative protection schemas brought forth by Applicants."

The IOUs respectfully question the benefit of this proposal. Standardized protection schemes make it easier to interconnect. Testing new schemes would slow down the process. Further, there is the risk that applicants will use the IOU as a testing ground for unproven methods.

While the IOUs understand that new technologies could bring new methods of complying with protection requirements, the IOUs believe that "new technologies" first need to be addressed by standard committees such as IEEE standards committees. Standards committees have subject matter experts from all industries as members and would be able to develop standards and testing procedures for "new technologies". It becomes easier for the utilities to utilize the "new technology/new schemes" once the new requirements and testing procedures have been implemented.

In the short term, the utilities believe that there may be some improvement in the Rule 21 technical requirements as to fully utilized inverter based technology which meets the IEEE1547/UL1741 testing requirements. The IOUs will review and update, if necessary, the applicable sections in Rule 21 to seek efficiencies.

8. Electric Vehicle Interconnection Issues

Rule 21 governs the interconnection of facilities such as generation and storage that operate in parallel with the grid. Currently EVs only draw power from the grid so there is no "waiver" of Rule 21 requirements, its rules simply do not apply. EV charging may require new

facilities or upgrades but currently this review is completed under other tariffs[3], not Rule 21. However, the IOUs agree with the Staff Report that change is on the horizon. The potential is there for future developments in EV technology and programs enabling EVs to be equipped to operate in parallel with the grid and send power back to the grid. This will add a new element of mobility to the interconnection process and will present many challenges and opportunities. As EV technology develops the IOUs look forward to participating in the effort to put in place modifications to Rule 21 that will accommodate the new technologies while maintaining the safety and reliability of the grid.

III. CONCLUSION

The IOUs appreciate the opportunity to comment on the Staff Report and respectfully request that any rulings thereon be consistent with the foregoing comments.

Respectfully submitted,

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[3] D.13-06-014 references Electric Tariff Rules 15 and 16.